

SIEMENS

SIMATIC NET

PG/PC - Industrial Ethernet CP 1613 A2




Operating Instructions

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.
 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.


If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

 WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Preface

Validity of this documentation

These operating instructions are valid for the following product:

- CP 1613 A2
Article number: 6GK1161-3AA01

Content of this documentation

These operating instructions contain information about the installation and configuration of the CP 1613 A2 communications processor.

Updated operating instructions on the Internet

You will find the current version of these operating instructions on the Product Support pages under the following entry ID:

62611661 (<https://support.industry.siemens.com/cs/ww/en/view/62611661>)

Further documentation

The documents listed below contain more detailed information on commissioning and using the communications processor.

Enter the entry ID shown below of the relevant manual as the search item.

- **Configuration manual Commissioning PC Stations**

This provides you with detailed information on commissioning and configuring SIMATIC NET PC communications modules.

Entry ID:

109488960 (<https://support.industry.siemens.com/cs/ww/en/view/109488960>)

- **SIMATIC NET - Industrial Communication with PG/PC**

- **Volume 1 – Basics (system manual)**

Entry ID:

77376110 (<https://support.industry.siemens.com/cs/ww/en/view/77376110>)

- **Volume 2 – Interfaces (programming manual)**

Entry ID:

77378184 (<https://support.industry.siemens.com/cs/ww/en/view/77378184>)

The system manuals introduce the topic of industrial communication and explain the communications protocols used. There is also a description of the OPC interface as user programming interface.

- **Installation manual SIMATIC NET PC Software**

This document contains detailed information on installing the "SIMATIC NET PC Software".

Entry ID:

77377602 (<https://support.industry.siemens.com/cs/ww/en/view/77377602>)

- **System manual Industrial Ethernet Network Manual**

In this document you will find detailed information about setting up an Industrial Ethernet network.

Entry ID:

27069465 (<https://support.industry.siemens.com/cs/ww/en/view/27069465>)

SIMATIC NET documentation

You will find the entire SIMATIC NET documentation on the Product Support pages: 15247 (<https://support.industry.siemens.com/cs/ww/en/ps/15247>)

Go to the required product group and make the following settings:

→ Filter criteria for entries → entry type "Manual"

See also

Support (<https://support.industry.siemens.com/cs/ww/en/ps>)

Trademarks

The following and possibly other names not identified by the registered trademark sign ® are registered trademarks of Siemens AG:

SIMATIC NET, HARDNET, SOFTNET, CP 1612, CP 1613, CP 5612, CP 5613, CP 5614, CP 5622

Industry Online Support

In addition to the product documentation, the comprehensive online information platform of Siemens Industry Online Support at the following Internet address:

Link: (<https://support.industry.siemens.com/cs/de/en/>)

Apart from news, there you will also find:

- Project information: Manuals, FAQs, downloads, application examples etc.
- Contacts, Technical Forum
- The option submitting a support query:
Link: (<https://support.industry.siemens.com/My/ww/en/requests>)
- Our service offer:

Right across our products and systems, we provide numerous services that support you in every phase of the life of your machine or system - from planning and implementation to commissioning, through to maintenance and modernization.

You will find contact data on the Internet at the following address:

Link: (http://www.automation.siemens.com/aspa_app/?ci=yes&lang=en)

SITRAIN - Training for Industry

The training offer includes more than 300 courses on basic topics, extended knowledge and special knowledge as well as advanced training for individual sectors - available at more than 130 locations. Courses can also be organized individually and held locally at your location.

You will find detailed information on the training curriculum and how to contact our customer consultants at the following Internet address:

Link: (<http://sitrain.automation.siemens.com/DE/sitrain/default.aspx?AppLang=en>)

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept.

Customer is responsible to prevent unauthorized access to its plants, systems, machines and networks. Systems, machines and components should only be connected to the enterprise network or the internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place.

Additionally, Siemens' guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit

<http://www.siemens.com/industrialsecurity>

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under

<https://support.industry.siemens.com/cs/ww/de/ps/15247/pm>

SIMATIC NET glossary

Explanations of many of the specialist terms used in this documentation can be found in the SIMATIC NET glossary.

You will find the SIMATIC NET glossary on the Internet at the following address:

50305045 (<http://support.automation.siemens.com/WW/view/en/50305045>)

Description of the device

Product features

The CP 1613 A2 is a PCI module for connecting PGs/PCs to Industrial Ethernet. The essential properties are as follows:

- RJ-45 jack for Industrial Ethernet for connecting a TP cable (TP -twisted-pair)
- 15-pin D-sub socket for AUI and ITP
The 15-pin D-sub socket with slide locking mechanism is intended for connection of both AUI transceiver cables (AUI - Attachment Unit Interface) and for connection of ITP cables (ITP - Industrial Twisted Pair).
- The following data rates are supported:
 - 10/100 Mbps (half/full duplex)
- Own processor on the CP 1613 A2 relieves the PC/PG CPU
- Autosensing, autonegotiation
- The changeover between the AUI and ITP connector is made automatically by the CP 1613 A2 if you use Siemens ITP cables.
- ISO and TCP/IP transport protocol onboard

Hardware requirements

The CP 1613 A2 requires a PCI slot for operation.

LED display

To indicate module activity, the CP 1613 A2 has two LEDs on the RJ-45 jackl that are lit when data is being received (green) and when data is being sent (yellow).

Software installation

3.1 Installing the driver

Installation

After the PC has booted, the Windows plug-and-play mechanism searches for a driver for the communications processor. The driver can be found on the "SIMATIC NET PC Software" DVD.

3.2 Installing the "SIMATIC NET PC Software"

"SIMATIC NET PC Software"

The "SIMATIC NET PC Software" is the software package with which you can operate the communications processor in your PG/PC.

To configure the communications processor, you require additional configuration software. You will find information on the configuration software in the section "Configuration (Page 15)".

Condition

The plug and play function is activated in the BIOS of your PG/PC.

Prior to hardware installation

Install the software as described in the installation manual "SIMATIC NET PC Software". You will find this installation manual on the Product Support pages under the following entry ID:

77377602 (<https://support.industry.siemens.com/cs/ww/en/view/77377602>)

You should also note the current information on the "SIMATIC NET PC Software" on the Product Support pages in:

Hotspot-Text (<https://support.industry.siemens.com/cs/ww/en/ps/15362/pm>)

After the hardware installation

After installing the communications processor, your PG/PC automatically searches for a suitable driver.

1. Follow the instructions of the Hardware Wizard of Windows.
2. Do not activate the search for drivers on the Internet.

3.3 Uninstalling the "SIMATIC NET PC Software"

Condition

The "SIMATIC NET PC Software" is installed on the PG/PC.

Procedure

Note

The recommended procedure removes the entire "SIMATIC NET PC Software" on the PG/PC, not only the driver for the communications processor.

Uninstall the entire software package as described and recommended in the installation manual "SIMATIC NET PC Software".

You will find the installation manual on the "SIMATIC NET PC Software" DVD or on the Product Support pages under the following entry ID:

77377602 (<https://support.industry.siemens.com/cs/ww/en/view/77377602>)

Hardware installation

Number of permitted communications processors

Note

A maximum of four CP 1613 A2 modules can be operated in a PC/PG at the same time. Take into account the technical specifications of the power supply for the PCI slots of the PG/PC.

Notes on the AUI and TP sockets

Note

Always use either the AUI or the TP socket. Both sockets must not be operated at the same time.

Note

If you change from the AUI to the TP socket (or vice versa) during ongoing operation, it is possible that the changeover will not be detected. We recommend that you only change from one socket to the other when the device is turned off.

Transceiver power supply

Note

The CP 1613 A2 provides a voltage of 12 V to supply a transceiver on its AUI interface. The maximum load for this is a permanent current of 500 mA!

AUI cable

Note

The CP 1613 A2 has 2 sockets for connecting network cables. If you use the AUI interface for the AUI transceiver cable, breaks of 2 to 3 seconds can occur sporadically in communication. To avoid problems due to this, do not set timeouts for this mode to less than 5 seconds!

Note

In the "Communication Settings" configuration program, the current network parameters of the CP 1613 A2 among other things are displayed in the "Network Parameters" tab. As long as no valid link to the partner is detected, "unknown" is displayed here. Since there is no link detection with AUI, the reception of frames is used as a substitute for link detection. If no frames are received and the AUI cable is plugged in, it is assumed that no link exists. A valid link is assumed only when the first frame is received via AUI and the network parameters are then output (AUI, 10 Mbps, half duplex).

Further notes on passive network components

You will find important notes on the use of passive network components in the document "Industrial Ethernet / PROFINET Passive Network Components (<https://support.industry.siemens.com/cs/ww/en/view/84922825>)".

Procedure

To install and connect up the communications processor follow the steps outlined below:

Note

When handling the communications processor, make sure that you do not touch the connectors or the electronic components.

1. Turn off the PC and pull out the power cable connector from the socket.
2. Open the PC housing as described in the manual for your PG/PC and remove the cover of a free PCI slot in the PC.
3. Insert the communications processor in the PCI slot.
Make sure that the communications processor is inserted and secured correctly.
4. Close the PC housing as described in the manual accompanying your PG/PC.
5. Insert the connecting cable (TP, AUI or ITP) in the socket on the front panel of the communications processor.
6. Plug the power supply connector into the socket again and turn on the PC.

Configuration

Configuring

To be able to configure the communications processor, the following engineering or configuration tools are available:

- STEP 7 V5.5
- STEP 7 Professional (TIA Portal)
- Communication Settings (COML S7)

The steps involved are described in the "Commissioning PC Stations" manual or in the relevant online helps.

Technical specifications

CP 1613 A2

The following technical specifications apply to the CP 1613 A2 communications processor:

Data transmission	
Transmission rate	10/100 Mbps
Interfaces	
Attachment to Industrial Ethernet	15-pin D-sub socket with AUI and Industrial Twisted Pair
Connection to 10BaseT/100BaseTX	RJ-45 connector
Connection to PG/PC	PCI slot (3.3 V, 5 V, 32 bits)
Voltage	
Power supply	5 VDC, $\pm 5\%$ 12 VDC, $\pm 5\%$
Current consumption	
at 5 VDC	maximum 450 mA
at 12 VDC	maximum 500 mA
Permitted ambient conditions	
Operating temperature	+5 °C to +55 °C
Transportation/storage temperature	-20 °C ... +60 °C
Construction	
Module format	PC card, short PCI format
Dimensions (H x W x D) in mm	107 x 21.6 x 167
Weight	140 g
Slot requirement	PCI slot, short

Approvals

Note

The specified approvals apply only when the corresponding mark is printed on the communications processor.

Electromagnetic compatibility - EMC directive

The communications processor meets the requirements of the EC Directive:2004/108/EEC (EMC directive).

The communications processor is designed for use in the following areas:

Area of application	Requirements	
	Emission	Immunity
Residential areas, business and commercial operations, and small businesses	EN 61000-6-3	EN 61000-6-1
Industrial environment	EN 61000-6-4	EN 61000-6-2

Declaration of conformity

You will find the declaration of conformity for this communications processor on the Product Support pages under the following entry ID:

58826997 (<https://support.industry.siemens.com/cs/ww/en/view/58826997>)

C-TICK approval

The communications processor meets the requirements of the Australian AS/NZS 3548 standard according to EN 61000-6-3.

CSA approval

The communications processor has an approval in accordance with the Canadian CAN/CSA C22.2 No. 60950-1 standard.

ICES conformity

The communications processor meets the requirements of the Canadian standard ICES-003. It is rated as a digital device of Class B ("Class B digital apparatus").

FCC approval

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Siemens AG is not responsible for any radio television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Siemens AG. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user. The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

UL approval

The communications processor has an approval in accordance with the US standard UL 60950-1.

Marking for the customs union



EAC (Eurasian Conformity)

Customs union of Russia, Belarus and Kazakhstan

Declaration of the conformity according to the technical regulations of the customs union (TR CU)